REVIEW OF AGGRESSIVENESS IN DOGS AND PROPOSAL OF A DIAGNOSTIC TABLE

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INTRODUCTION

Canine aggressiveness represents 52-72% of all ethological consultations. It's social impact is due to the amount of people bitten each year, its economical cost and the cost in animal welfare.

OBJECTIVES

- Evaluate the effectiveness of the legislation.
- Review the diagnosis, treatment and prevention of aggressivity.
- Propose a model of diagnostic table.
- Evaluate the adoption as an alternative to euthanasia.

LEGISLATION

There're two types of laws of dangerous dogs in Europe:

- BSL laws (*Breed Specific Legislation*)
- nBSL laws (*non-Breed Specific Legislation*) → These have proved to be more effective reducing the aggressions.

Table 1: Breeds considered Potentially Dangerous Dogs (PDD) in the Autonomous Communities of Spain that extend the state list. *Own elaboration.*

Breed included in legislation as PDD
Breed not included in legislation as PDD

	SPAIN	Catalonia	Valencian Community	Andalusia	Galicia	Cantabria	Castile and León	Extremadura	Navarre	Melilla
	2002	1999	2015	2008	2017	Vary	1999	2002	Vary	2017
Pit Bull terrier	■	■	■	■	■	■	■	■	■	■
American Staffordshire terrier	■	■	■	■	■	■	■	■	■	■
Staffordshire Bull terrier	■	■	■	■	■	■	■	■	■	■
Rottweiler	■	■	■	■	■	■	■	■	■	■
Dogo Argentino	■	■	■	■	■	■	■	■	■	■
Fila Brasileiro	■	■	■	■	■	■	■	■	■	■
Tosa inu	■	■	■	■	■	■	■	■	■	■
Akita inu	■	■	■	■	■	■	■	■	■	■
Bullmastiff		■	■		■	■		■	■	
Doberman Pinscher		■	■	■	■					
Dogue de Bordeaux		■	■		■	■				■
Napolitan Mastiff		■	■		■	■		■	■	■
Dogo Canario		■	■		■	■		■	■	■
Tibetan Mastiff					■	■	■			■
Dogo Mallorquín			■		■	■			■	■
Bull terrier			■		■					
Boxer										

CLASSIFICATION OF AGGRESSIVENESS

Fig. 1: Offensive and defensive postures of the dog. *Manteca X. 2002. Etología Clínica Veterinaria del Perro y del Gato. 2a ed. Barcelona: Multimédica. 261p*

OFENSIVE POSTURE DEFENSIVE POSTURE

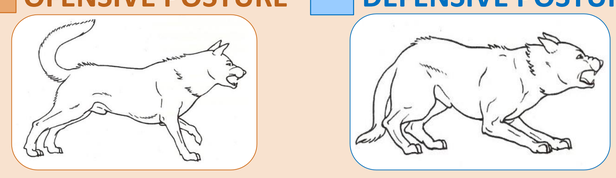

Table 2: Aggressiveness classification based on the posture of the dog, the victim and the context of aggressions. *Own elaboration.*

POSTURE	TYPE OF AGGRESSIVITY	TARGET/VICTIM	DEFINITION
OFENSIVE	Competitive	Familiar people/animals	Competence for a resource (food, toys, attention, etc.)
	Territorial	Unfamiliar people/animals	For approximation to its territory
	Intrasexual	Unfamiliar dogs (same sex)	Usually intact males to other males. It has hormonal influence
	Maternal	Unfamiliar people/animals	Bitches in lactation or pseudopregnancy when someone approaches the nest or the puppies
	Learned	Depends on training	Dogs trained to show territorial or intrasexual aggressiveness for guard or fight.
DEFENSIVE	Fear	Familiar/unfamiliar people/animals	In contexts of fear to the target without availability to escape
NONE	Predatory	Unfamiliar kids/small animals in movement	Predatory sequence (stare, haunt, chase and kill). Causes pleasure (auto-reinforcement).
VARIABLE	For organic cause	Depends on the disease	Pathological condition, like hypothyroidism or epilepsy, that causes aggressiveness as a sign.
	Redirected	Depends on the original type of aggressivity	When the original type of aggressivity cannot be expressed, so it's redirected to a closer target

DIAGNOSIS

The diagnosis is based on veterinary exam to discard organic causes and exhaustive anamnesis to identify the type of aggressiveness. Behavioural tests are helpful for the diagnosis in shelters or kennels (Table 5).

The risk analysis is essential to determine the risk of treating a dog in it's environment, as it takes months to success. In high risk dogs due to its actual environment, adoption could be an alternative to euthanasia.

A model of diagnostic table is proposed on the project paper.

Table 5: Comparative table of different available behavioural tests. *Own elaboration.*

	Type of test	Target	Duration	Environment	Nº sub-tests	Analyzed aggressivity	SE	SP	Predict.
C-BARQ	Questionnaire	Owners	10-15 min	-	100	All types	No data		
SAB-test	Stimuli exposition test	Owners	15 min	Outdoor	16	Fear aggressivity to unknown people (not territorial)	71,3%	94,5%	81,8%
SAFER		Shelters	10 min	Indoor	7	To people and dogs	60%	50%	No data
MUAs		Kennels	45 min	Indoor	43	All types	73,1%	57,5%	84,6%
Assess-A-Pet		Shelters	15-20 min	Indoor	10	To people, dogs and cats	73%	59%	No data
B.A.R.K		Shelters	20 min	Indoor/Outdoor	12	All types	No data		

TREATMENT

Table 6: Types of treatments based on the type of aggressiveness. *Own elaboration*.

TREATMENT		DESCRIPTION	TYPES OF AGGRESSIVITY	REFERENCES
BHEAVIOURAL TREATMENT	Basic training	Basic orders (like "sit") are trained to improve the handling of the animal in situations of risk of aggression. The clicker method (coonditioned reinforcement: previously the animal has been taught to relate its sound with the reward) can be used to reward inmediately a behaviour.	All types: Offensive, defensive and predatory	(Bowen and Heath 2005; Landsberg et al. 2013)
	Behavioural modification	Combination of two techniques: Desensitization (reduces the reactivity of the dog to the provocative stimuli) and Counterconditioning (training the animal to behave in a contrary and incompatible way with aggressiveness in presence of the stimuli). For applying these techniques in a progressive way, all stimuli inducing aggressivity have to be identified and ordered from lowest to highest potential to induce it.	Offensive and defensive aggressiveness. The predatory aggressiveness doesn't respond well to treatment	(Manteca 2002; Bowen and Heath 2005; Mills 2006; Landsberg et al. 2013; Lynn et al. 2014)
ADJUVANT TREATMENTS	Pharmacologic treatment	Serotonin reuptakes inhibitors: Fluoxetine, Clomipramine.	Offensive or defensive aggressiveness (those that cause stress)	(Reisner 2006)
	Nutritional treatment	Nutriceutics and special diets to increase the amount of tryptophan (serotonin precursor)		(Dodman 1998; Luescher and Reisner 2008)
	Pheromones	Pheromone diffusor (DAP: Dog Appeasing Pheromone) to reduce stress and anxiety		(Luescher y Reisner 2008)
	Surgery: Neutering	Mainly males (sometimes females), together with behavioural treatment, for aggressiveness with high hormonal influence.	Intrasexual or maternal aggressiveness	(Reisner 2003; Mertens 2006)

PREVENTION

Further attacks should be prevented in aggressive dogs with control and surveillance, to avoid impulsiveness and reinforcement.

The appearance of aggressivity in non aggressive dogs could be prevented educating owners and kids about canine behaviour, selecting breeders in kennels and socialising puppies.

CONCLUSIONS

1. BSL laws proved to be less effective than nBSL laws. They should be modified
2. Diagnosis includes a veterinary exam, an exhaustive anamnesis, behavioural tests in shelters or kennels and risk analysis.
3. Treatment includes training and behavioural modification (desensitisation and counterconditioning). Adjuvant therapies can be considered.
4. Appearance of aggressivity can be prevented with education of population, adequate breeding programs and socialization programs